DOCUMENT RESUME

ED 178 173 PS 010 950

AUTHOR Carpenter, C. Jan
TITLE Relation of Children's Sex-Typed Behavior to Classroom, and Activity Structure.
INSTITUTION Kansas Univ., Lawrence.
SPONS AGENCY National Inst. of Child Health and Human Development (NIH), Bethesda, Md.
PUB DATE Mar 79
GRANT NICHHD-T01-HD00247
NOTE 15p.; For related document, see ED 170 052; Paper presented at the Biennial Meeting of the Society for Research in Child Development (San Francisco, CA, March 15-18, 1979)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Behavior Patterns; *Class Activities; *Classroom Participation; Classroom Research; Feedback; Play; *Preschool Children; Preschool Education; Self Directed Classrooms; *Sex Differences; Sex Role; Social Behavior
IDENTIFIERS *Activity Structure

ABSTRACT

The effects of preschool children's activity participation on a broad range of social and task-oriented behaviors was investigated. Effects of high versus low structure activities within classrooms and effects of high versus low overall structure between classrooms were examined. A measure of the amount of teacher feedback to individuals was used as an index of the degree of structure for each activity. Classrooms were rated as high or low overall structure based on the amounts of teacher-led and directed activities they incorporated. Eighty-three children, aged 2 1/2 to 5 years, in five preschool classrooms were observed during daily free choice of activity periods. Results showed that within classrooms, boys participated more in low structure activities and girls participated more in high structure activities. Findings also suggested that children in low structure classrooms were spending more time in self-organized play. The rate of compliance to teacher's directions was higher in high structure activities and high structure classrooms had more compliance than low structure classrooms. Low structure classrooms had more novel behavior than high structure classrooms and within low structure classrooms, more novel behavior occurred in low structure activities. Within classes, boys showed more self-initiated activity changes than girls. The self-initiated activity changes occurred more in low structure classrooms than in high structure classrooms. These findings were interpreted as supporting the idea that sex-typed behaviors are learned through participation in activities differing in structure. (JMB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED178173

U.S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

RELATION OF CHILDREN'S SEX-TYPED BEHAVIOR TO CLASSROOM, AND ACTIVITY STRUCTURE

C. Jan Carpenter

University of Kansas
Lawrence, Kansas 66045

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

C. Jan Carpenter

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Paper presented at the 1979 Biennial Meeting of the Society for Research in Child Development, San Francisco, March, 1979.

PS 010950

RELATION OF CHILDREN'S SEX-TYPED BEHAVIOR TO CLASSROOM, AND ACTIVITY STRUCTURE

C. Jan Carpenter

Participation in sex-typed activities is one of the best documented and earliest manifestation of sex-differences (Maccoby & Jacklin, 1974; Block, 1976). Recent evidence suggests that these play activities are instrumental in the development and maintenance of sex-typed behaviors and cognitive skills. Sherman (1967) challenged genetic theories by suggesting that males' superior visual-spatial skills are developed through participation in activities in which those skills are used, most notably block play. Other authors report training experiences which remediated girls' deficiencies in visual-spatial skills (Connor, Serbin, Schackman, 1977; Connor & Serbin, 1978).

In a previous paper and in the present further analysis, we investigated the effects of activity participation on the development of a broad range of social and task-oriented behaviors through an analysis of the structure of the activities themselves. Structure is defined as the extent to which there are externally imposed rules or guidelines about ways of performing the activity or task. In the context of the preschool classroom, structure can be provided by teacher directions and feedback, and by the availability of models performing analogs of the activity in the home environment. In the former case, adult directions or instructions provide information concerning appropriate behavior in the activity; in the latter case, information about appropriate behavior comes from observing adults performing the activity. When an activity has low structure, children may be forced to take initiative and to exercise self-direction in deciding what to do in that situation, that is they may "create their own structure." Therefore, unstructured activities should contain more instances of behaviors such as novel use of materials, independence, or taking initiative, because essential components of these behaviors are child initiated responses. By contrast, structured activities may

encourage children to follow patterns established by others through behaviors such as compliance, passivity or dependence. In effect, structured activities may teach children to fit into structures created by adults or teachers rather than establishing their own patterns.

If girls play in more structured, and boys in less structured activities, sex differences in behavior may result from the different patterns encouraged by these activities. However, if activity structure is as powerful as suggested, the behavior of both boys and girls should vary by the structure level of the activity and not by the sex of the child.

In an earlier paper (Carpenter, Huston-Stein & Baer, 1978), we reported results of an analysis of classroom activities by three indices of structure. The indices were two types of teacher feedback and directions (individual and group feedback), and availability of models for performing activities in the child's home. We found that girls played more in activities high in structure and boys played more in activities low in structure. Both boys and girls showed more compliance in high structure activities and more novel behavior in the low structure activities.

In the present report, we expanded the analysis to include classroom differences in overall structure. We expected that children in classrooms with high structure would have higher rates of compliance, while children in low structure classrooms would show higher rates of novel use of materials and self-initiated activity changes.

Eighty-three children, ages 2½ to 5, in five preschool classrooms were observed during daily free choice of activity periods. Classroom organization was similar across all classrooms. There were five or six major activity options arranged in "centers" each day, plus assorted games, puzzles, and other toys.

The preschool teachers were masters, or undergraduate level practicum students, supervised by a faculty member. Trained observers using a 20-second interval observation code recorded 1) the activities in which the children participated; 2) the amounts of compliance, novel use of materials, and self-intiated activity changes; 3) the amount of teacher feedback (instructions, directions, commands, questions) received in each activity.

Children were observed for 4 minutes at a time, and observations alternated between males and females. Reliability checks were made approximately every two weeks throughout the semester. Mean inter-observer reliability was 88%.

For the report today, we have included only the individual feedback index of structure. The five classrooms ranked identically on individual and group feedback.. The correlation between classroom means on individual and group feedback was .98. With such a high correlation, patterns of relations should be similar between the feedback indices and the other variables. Model availability was irrelevant to defining classroom structure.

In today's report, we examined together the results for the within classroom differences and the between classroom differences to illuminate parallel findings.

In order to define structure of activities within each classroom, 20 activities were classified in four levels of individual feedback: high, medium high, medium low, and low. The classification was done separately for each class. That is, those activities with highest individual feedback in classroom A were placed in the high level for that classroom, and those with the highest individual feedback in B were placed in the high level for that classroom. For example, high individual feedback activities in classroom A were: painting, carpentry and plumbing, water and sand table, board games, and puzzles. In the B classroom, high individual feedback activities were: science, play dough and clay, art, trucks and trains, and play house.

Participation.

Within classrooms, as expected, boys participated more than girls in low structure activities, and girls participated more than boys in high structure activities, despite the variety of activities classified in the various levels of structure. In an analysis of variance of sex X classroom X structure, there was a significant interaction of sex by structure. The F ratios appear in Table 1. The means for boys and girls in each

structure level are shown in Figure 1. The girls' means that are starred are significantly different from means for boys at that level of structure.

Between classrooms, one cannot examine sex-differences because children don't choose the classroom they are in. Nevertheless there was a main effect of classroom on overall rate of participation in any activity. When children's activities were recorded during the observations, they were sometimes in transition between activities, or in no definable or organized activity. Hence, the total rate of participation in activities at all structure levels does not equal 100%; it indicates rate of participation in <u>any</u> organized or definable activity as opposed to going to an activity, wandering around, just sitting, or "doing nothing." Figure 2 illustrates the classroom means, arranged in order of lowest to highest amount of individual feedback. Children in the low structure classrooms had lower participation in any organized activities than those in more structured classrooms. Some classrooms were more structured than others, that is, the rate of participation in high structure activities occurred more in classrooms with high rates of individual feedback. A Pearson correlation was calculated comparing classroom individual feedback rankings, and the corresponding rate of child participation; the correlation coefficient was .76.

Based on these findings, we can tentatively suggest that children in the low structure classrooms were spending more time in self-organized play. High structure classrooms as defined earlier, were those with high amounts of teacher led and directed activities. In these classrooms the teacher created more classroom structures, and more children fit into these structures than in the low structure classrooms. By contrast, in low structure classrooms, children had more opportunity to create their own "play structures" through self-guided and self-directed initiations.

<u>Compliance</u>.

It was expected that compliance would occur more in high feedback activities as children practice "fitting into the structures" created by teachers; novel use of materials and self-initiated activity changes would

occur in low structure activities where the child had more opportunity to self-structure his or her own behavior. Similarly, compliance should be higher in high structure classrooms, and novel use of materials and self-initiated activity changes should be higher in the low structure classrooms. These behaviors should vary as a function of class and activity structure, regardless of sex. That is, we expected that boys and girls would behave similarly when they were in similar activities or settings. This prediction was supported for compliance and novel behavior, but not for self-initiated activity changes.

In the within classroom analysis, compliance scores were equated for opportunity to comply by dividing compliance by individual feedback for each child. There was a significant main effect of structure on compliance. The means are graphed in Figure 3. The rate of compliance was higher in high structure activities than in the low structure activities.

The between classrooms analysis showed similar support for the hypothesis. The main effect of classroom was significant. High structure classrooms had more compliance than the low structure classrooms. The correlation between classroom rankings of teacher feedback and cell means of the compliance scores by level of structure was .72. The classroom compliance means are graphed in Figure 4.

As expected, there was no main effect for sex or any interaction of sex by structure on the rate of compliance. This provided support for the hypothesis that the activity or classroom and corresponding structure level encourages compliance regardless of the sex of the child.

Novel use of materials.

Although the overall occurrence of novel behavior was low, with virtually none occurring in several classrooms, within classrooms the individual feedback by classroom interaction was significant at the .001 level. The cell means indicated that when it did occur, it was in activities low in individual feedback. These combined classroom means are graphed by structure level in Figure 5.

In the classroom analysis, there were main effects for class for novel behavior. The classroom means, graphed by structure level are shown in Figures 6 & 7. Low structure classrooms had more novel behavior than high structure classrooms. The class by structure interaction showed that within low structure classrooms, more novel behavior occurred in low structure activities. Within the medium structure classrooms, when novel behavior occurred, it was in the intermediate structure activities. In the very high structure classrooms, novel behavior did not occur. The correlation between rate of teacher feedback and novel behavior was -.47.

Self-initiated activity changes.

Two main effects were shown for self-initiated activity changes: classroom, and sex. Within classes, boys showed more self-initiated activity changes than girls. The self-initiated activity changes occurred more in low structure classrooms than high, as shown in Figure 8.

Early socialization experiences which may affect the development and maintenance of sex-typed behavior in preschool children were examined in this research report. Preschool activities and classrooms were found to differ in the level of structure provided by adults in the environment. In other words, children's activity and classroom experiences vary in the amount of adult direction, feedback, or assistance received. Participation in high or low structure activities is sex-typed. Boys participate more in activities low in structure, and girls participate more in activities high in structure. Children of either sex who play in high structure classrooms or activities show more behaviors which are consistent with the notion of "fitting into structures created by others." A parallel finding is that children of either sex who play in low structure activities or classrooms show behaviors consistent with the self-directed and initiated behavior of "creating one's own structure." Novel use of materials and self-initiated activity changes occurred more often in low structure classrooms. These behaviors appear to vary with the structure level of the activity or classroom, and not the sex of the child.

The importance of this finding is that activity or classroom participation may encourage and maintain activity-specific behaviors regardless of sex. Other literature has documented that compliance and novel use of materials are sex-typed. Girls display more compliance, while boys show more rates of novel or inventive behavior (Block, 1976; Maccoby & Jacklin, 1974). Yet in the present study, these behaviors were directly related to the structure level of the activity or classroom, not sex of the child. These findings support the idea that sex-typed behaviors are learned through participation in activities differing in structure.

REFERENCES

Bijou, S.W. & Baer, D.M. Child development: A systematic and empirical theory. New Jersey: Prentice-Hall, 1961.

Block, J.H. Issues, problems, and pitfalls in assessing sex differences: A critical review of the psychology of sex differences. Merrill-Palmer Quarterly, 1976, 22, 383-408.

Bruner, J.S. Organization of early skilled action. Child Development, 1973, 44, 1-11.

Carpenter, C.J. , Huston-Stein, A.C., & Baer, D.M. The relation of children's activity preferences to sex-typed behavior. Paper in symposium, titled Sex-Differences in Children's Play-Implications for Later Development, American Psychological Association Convention, Toronto, Canada, August, 1978.

Connor, J.M., Serbin, L.A., & Schackman, M. Sex differences on children's response to training on a visual-spatial test. Developmental Psychology, 1977, 13, 293-294.

Connor, J.M. & Serbin, L.A. Behaviorally based masculine and feminine activity preference scales for preschoolers: Correlates with other classroom behaviors and cognitive tests. Child Development, 1977, 48, 1411-1416.

Maccoby, E.E. & Jacklin, C.N. The psychology of sex differences. Stanford, CA: Stanford University Press, 1966.

Parten, M.B. Social play among preschool children. Journal of Abnormal Social Psychology, 1933, 28, 136-147.

Sherman, J.A. Problem of sex differences in space perception and aspects of intellectual functioning. Psychological Review, 1967, 74, 290-299.

Sherman, J.A. On the psychology of women. Springfield, IL: Thomas, 1971.

Stein, A.H. & Bailey, M. The socialization of achievement orientation in females. Psychological Bulletin, 1973, 80 (5), 345-366.

TABLE 1

ANALYSIS OF VARIANCE OF RATE OF PARTICIPATION, COMPLIANCE, NOVEL BEHAVIOR, AND SELF-INITIATED ACTIVITY CHANGES

F Ratios and Significance Levels

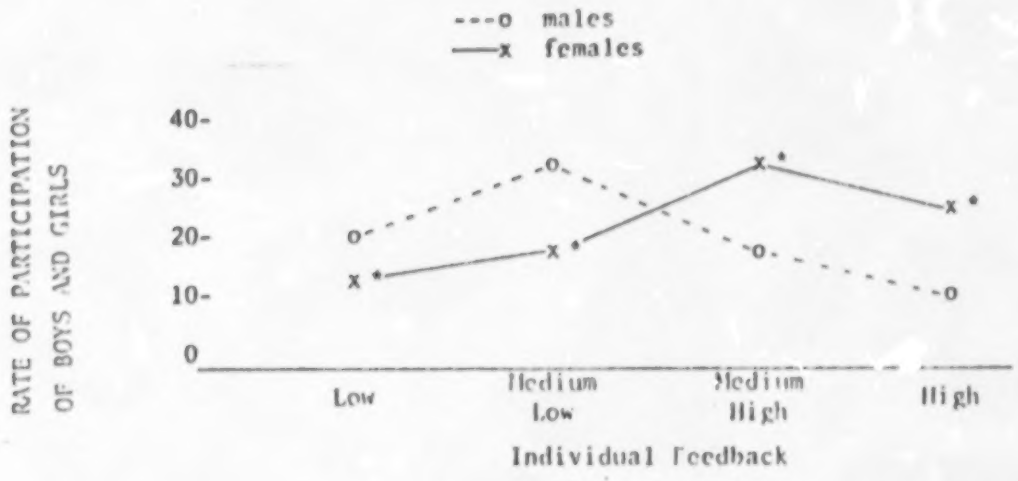
Source	df	participation	compliance	novel behavior	self-initiated changes
		INDIVIDUAL FEEDBACK			
Between					
sex	1	1.75	3.08	.91	10.55**
class	4	3.8**	4.65***	3.5**	5.67***
s X c	4	.81	1.43	.48	1.79
error	73				
Within					
structure	3	6.1***	3.56**	2.24	.30
s X sex	3	8.9****	.09	.32	.05
s X class	12	8.9****	1.57	3.17****	.73
s X c X s	12	3.5****	1.40	1.16	.74
error	219				

* significant at $p < .05$ ** significant at $p < .01$

*** significant at $p < .001$ **** significant at $p < .0001$

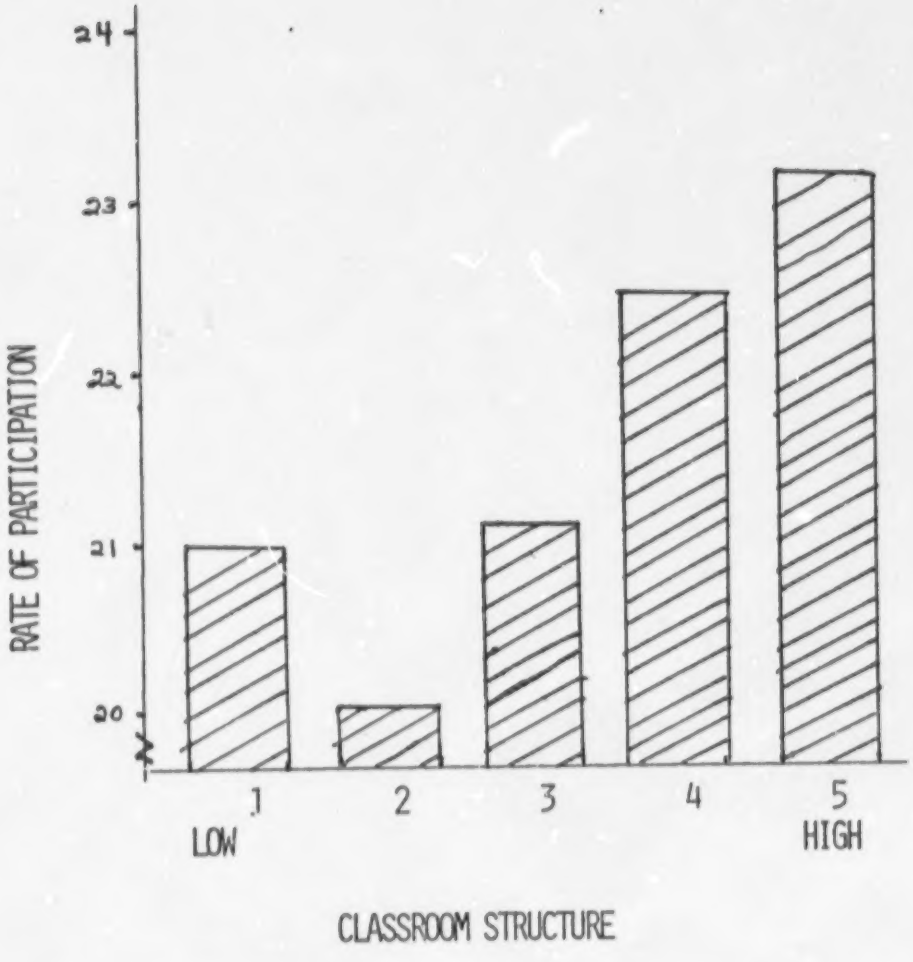
FIGURE 1

RATE OF PARTICIPATION OF BOYS AND GIRLS IN ACTIVITIES DIFFERING IN STRUCTURE

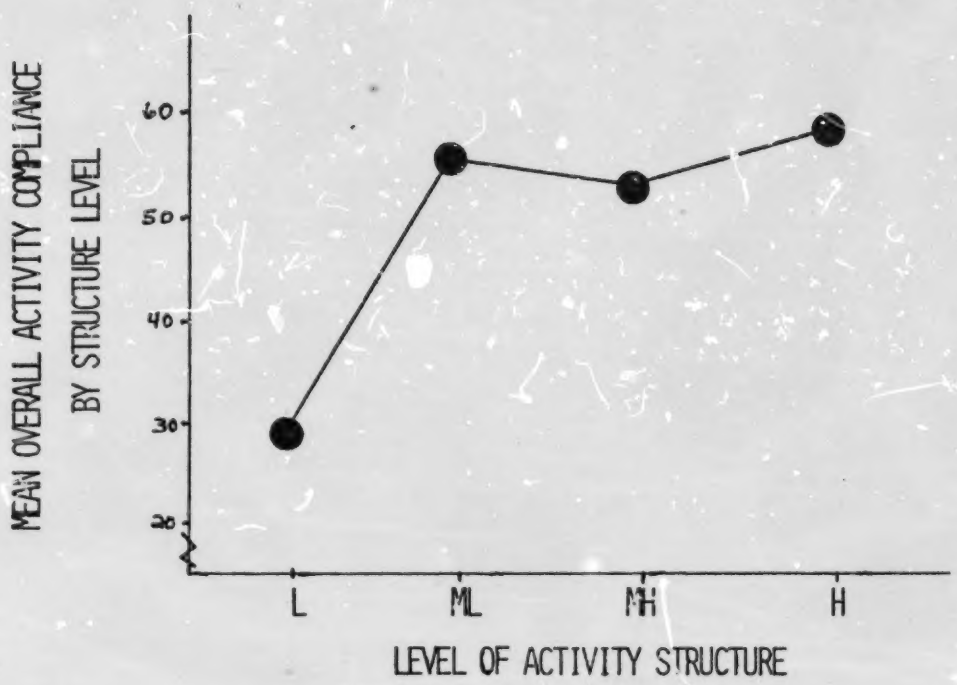


* Significant at $p < .05$. Tests of significance were performed using a simple F test of significance of cell means (Winer, 1962, p. 340).

FIGURE 2


24
23
22
21
20
RATE OF PARTICIPATION
1
2
3
4
5
LOW
HIGH
CLASSROOM STRUCTURE

FIGURES 3 & 4


MEAN OVERALL ACTIVITY COMPLIANCE
BY STRUCTURE LEVEL
60
50
40
30
20
L
ML
MH
H
LEVEL OF ACTIVITY STRUCTURE

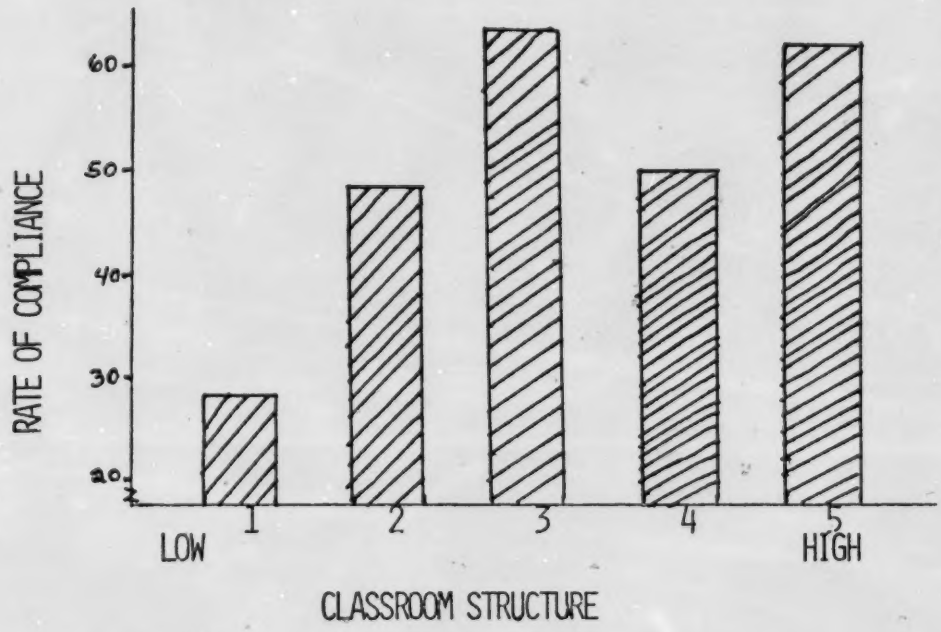

RATE OF COMPLIANCE
60
50
40
30
20
1
2
3
4
5
LOW
HIGH
CLASSROOM STRUCTURE

FIGURE 5

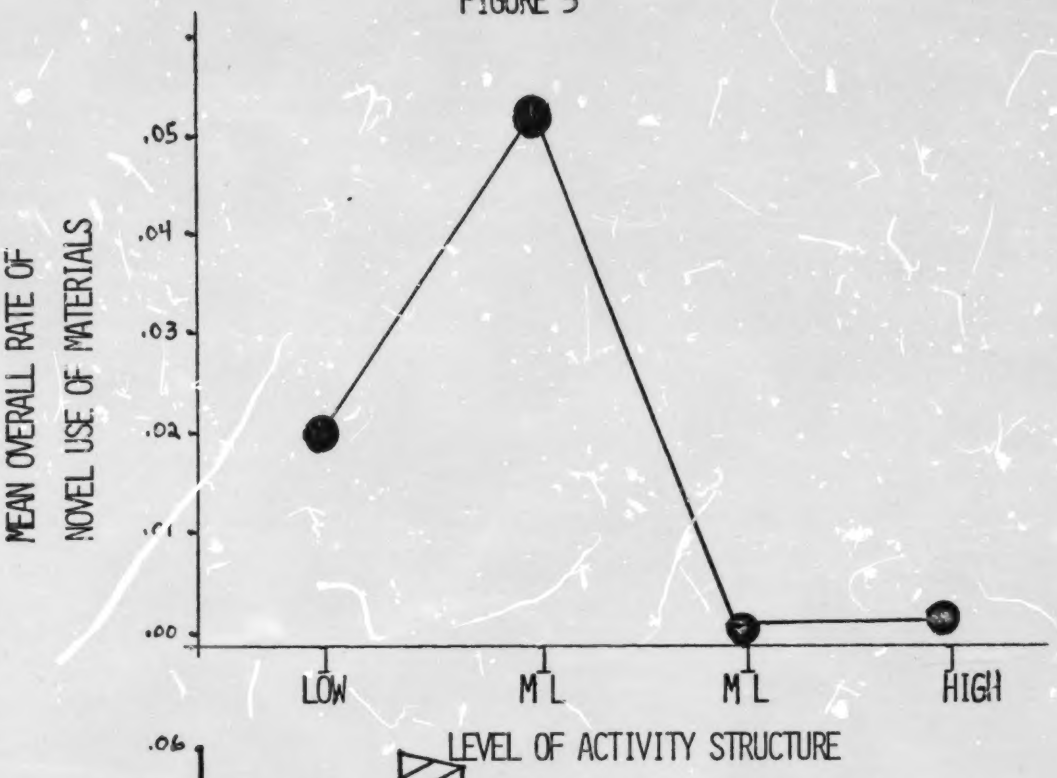


FIGURE 6

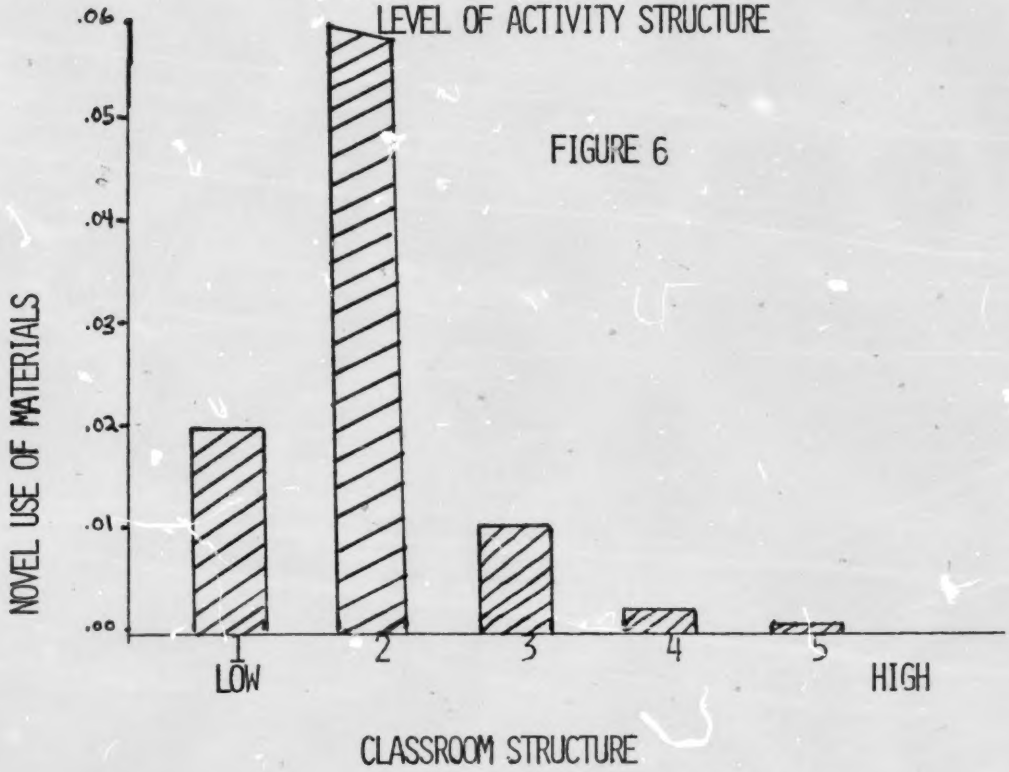


FIGURE 7

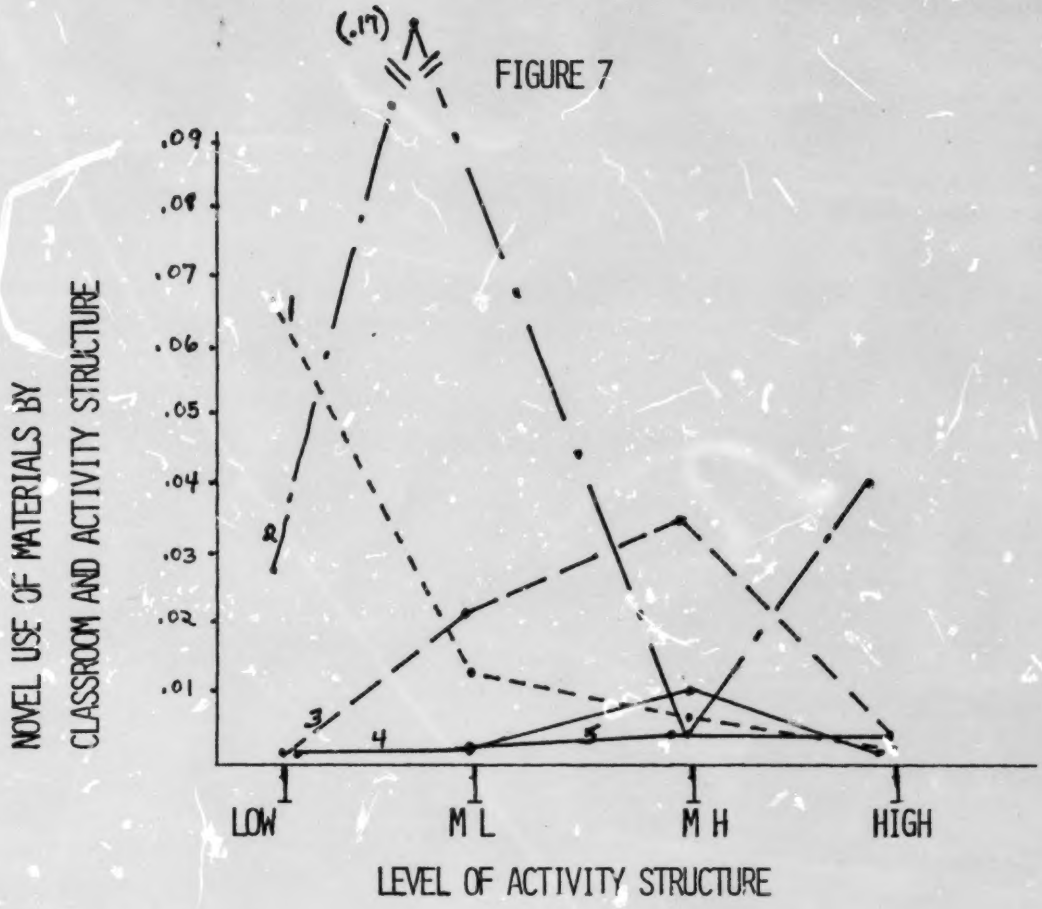


FIGURE 8